Heat Exchangers

A two-colour brochure, issued by the Process Plant Division of J. R. Bramah & Co. Ltd, illustrates many types of shell and tube heat exchangers produced for a wide range of industries. Copies are available from the Company's Process Plant Division, Holbrook Works, Halfway, Nr. Sheffield, Yorkshire.

Low-molecular Weight Granules

A report outlining the properties and applications of *Epolene*, a series of low-molecular weight granules, has been published by Eastman Chemical International AG. The use of the different members of the *Epolene* family as modifiers of waxes, paper coatings, floor polishes, and so on, is discussed in terms of varying molecular weights, degree of emulsifiability, and density. Copies of the report may be obtained from the Company at Zub-haus an der Aa, Zug, Switzerland.

Polypenco Plastics

Polypenco Ltd have reissued their product brochure on engineering plastics and components. Included are specifications of materials, details of engineering services, and components produced. Copies may be obtained from the Company at Gate House, Welwyn Garden City, Hertfordshire.

Aerosol-applied Lubricants

In line with the growing use of aerosols for general engineering, a pamphlet featuring a range of aerosol-applied lubricants has been published by Rocol Ltd. Requests for further information should be made to LPE Public Relations Ltd, 39 Charing Cross Road, London, W.C.2.

High-temperature Hydrocarbons

Crane Packing Ltd have issued an information bulletin giving details of sealing high-temperature hydrocarbons. Applications for copies should be made to the Company at Slough, Buckinghamshire.

Telepulse II

An information leaflet on the Whessoe *Telepulse II* telemetering and control system should provoke a great deal of interest. Copies of this leaflet should be requested from C. F. Deller, Whessoe Ltd, 40 Broadway, London, S.W.1.

Selective Low-temperature Hydrogenation

With usual German thoroughness, Lurgi Gesellschaft für Mineralöltechnik MBH have issued a booklet on the construction of plants for selective low-temperature hydrogenation. Copies of this booklet are free on request to the Company at Frankfurt am Main, W. Germany.

Pressure Regulators

Fairchild Hiller have published an information sheet as a guide to their range of *Governaire* pneumatic pressure regulators. The leaflet, together with a catalogue, may be obtained by writing to Electro Chemical Engineering Co. Ltd, Deltech Division, Sheerwater, Woking, Surrey.

Quality and Reliability Posters

British Productivity Council have issued a leaflet illustrating a set of twenty-four posters published in connexion with Quality and Reliability Year. Leaflets are available from the Chief Information Officer, Vintry House, Queen Street Place, London, E.C.4.

Diesel Welding Equipment

A useful technical information folder has been issued by Petbow Ltd, giving details of their diesel welding equipment. The folder, illustrated with photographs and a number of diagrams, is free on request to the Company at Sandwich, Kent.

Martin-Decker Recording Systems

Electric *Drilloger* recording systems are described in a bulletin issued recently by Martin-Decker Corpn. Copies may be obtained from the Company at 3431 Cherry Avenue, Long Beach, California, U.S.A.

Author Index

BENTHAM, R., Oil in Burma, 249–57
BURNAP, W. H., Gasoline Distribution in the U.S.A., 397–405
CATCHPOLE, W. M., Careers in the Oil Industry: The Chemist, 203–5
COLVERD, OWEN, Popularizing Petroleum in the Eighties, 194–8
DENTON, WINIFRED M., and THOMPSON, S. A. M., Screening of Compounds for Anti-oxidant Activity in Motor Oil, 46—54
DRIBBELL, P., Imperial Weights and Measures, 351–2
ELTENTON, G. C., Careers in the Oil Industry: The Physicist, 267–70
GASKELL, T. F., Research Committee, 54
GOODFELLOW, A. J., Branches Committee, 81
HARPER, J. D., Domestic Central Heating, 1–5
HESS, ARMAND M., *See* Williams, L. E.
HOBSON, G. D., Careers in the Oil Industry: The Geologist, 77–80
HUBBARD, M. E., Education Committee, 17–18
JOSEPH, A. K., The Swiss Oil Industry, 103–8
MCGECHAN, A. C., Careers in the Oil Industry: The Engineer, 154–6
MARSH, RICHARD, The Industrial Training Act, 29–32
MARTLAND, L., BTC–CEC Fuels Activities, 237–8
MAYO, F., Refinery Control by Computer, 169–75
O'CARROLL, F. M., Careers in the Oil Industry: Mathematicians and Statisticians, 309–11
PHILLIPS, H. C. D., Careers in the Oil Industry: The Chemical Engineer, 242–4
REGAN, L. M., *See* Williams, L. E.
SHUREY, K. E., Careers in the Oil Industry: Advertising, 345–7
SUTTLE, J. E., *see* Williams, L. E.
SYMON, W. R., Careers in the Oil Industry: The Mariner, 119–22
THACKERAY, F. G., North Sea Gas: How Much? How Soon? With What Consequences? 357–62
THOMPSON, S. A. M. *See* Denton, Winifred, M.
TOWLE, A., European Co-operation Before the CEC, 238–40
TRIMMER, J. G., Careers in the Oil Industry The Economist, 389–90
WALKER, A., National Methane Pipeline, North Western Gas Board Branch, 321–5
WILLIAMS, L. E., L. M. REGAN, J. E. SUTTLE, and ARMAND M. HESS, Offshore Drilling and Sub-sea Completions, 285–92
WILSON, LESLIE, Providing Information for the Technologist, 342–4
WINDEBANK, C. S., Finance Committee, 128
WITHERS, J. G., Inter-Industry Co-operation, 236–7

Subject Index

Abco Ltd, 364
Abu Dhabi:
  oil search, 68, 386–7, 407
  pipeline developments, 259
  power station, 328
Abu Dhabi (cont.)
  tanker berth, 220
Additives, anti-oxidant, 46–54
Adsorbents, polymeric, 427
Aerial spraying technique, 210
Air heater, 428
Alaska:
  offshore developments, 12
  oil search, 37, 71, 297, 370
  petrochemical developments, 260

Algeria
natural gas exploitations, 365
oil tax revenue, 68
petrochemical developments, 366
pipeline developments, 150–3
Amerada Petroleum Corpn, 351
American Petroleum Institute. Air and water conservation committee, 112
Ammeter:
high current, 318
pico, 319
Amoco (UK) Ltd, 57
Amplifier, operational, 282
Anchor, offshore rig, 93
Angola, oil search, 8, 295
Arabian American Oil Co., 312
Aral Belgique S.A., 9
Arctic Circle, oil search, 13
Argentina, refinery developments, 408
Arrow Oil Co. Ltd, 110
ASTM–IP co-operation, 164–5
Atlantic Refining Co., 37
Atlas McAlpine Ltd, 7
Australia:
exploration costs, 338
gas search, 34
oil and gas outlook, 61–6
oil search, 259, 295, 366, 408
refinery developments, 8, 366, 408
Austria, polyethylene plant, 366
Automotive industry, relationship with oil industry, 236–40

Background monitor, 282
Badger South Africa (Pty) Ltd, 410
Bahrain, oil search, 408
Balance, Mettler, 28
Basrah Petroleum Co. Ltd, 351
Belgium:
Dutch gas supply, 9
Esso research centre, 110
petrochemical developments, 220
refinery developments, 110, 328
Bolivia, oil industry, 381–2
Books:
Achievements 1965, 241
After hours, 162
ASTM Manual for Rating Aviation Fuels, Supplement to, 240
ASTM Papers and Reprints, Five Year Index, 340
ASTM Standards on Gaseous Fuels, Coal, and Coke, 277
ASTM Viscosity Index Tables, 123
Atmospheric Pollution, 162
Automatic Control, Advances in, 240
British Standards Yearbook 1966, 277
Butt Welds, Recommendations for Ultrasonic Testing of, 42
Buyers Guide 1966, 379
Careers with Instruments, 42
Castrol Review of 1965, 277
Central Electricity Board Annual Report, 42
Chemistry, in the Realms of, 42
Dawn of an Industry, 341
Electrical Safety Code, 341
Emergent Nations, 42
Energy Policy, Problems and Objectives, 305
Energy, Sources of, 380
Esso in Britain, 379
Esso in Europe, 380
European Federation of Chemical Engineering, 1965 Annual Report, 380
Fina Review, 1966, 379
Fire Protection in Industry, 379
Foodstuffs, Heat Treatment of, 123
Fresh Fields for Industry, 123
Gas, 340
Books: (cont.)
Gas Chromatography Abstracts 1965, 280
Gas Council Researches, Advisory Committee on, 418
Gear Lubrication, 280
Heat Bibliography, 1965, 380
Hydrocarbon Analysis, 42
International Petroleum Industry, 202
International Standards, BSI Catalogue, 341
Laboratory Handbook of Toxic Agents, 340
Lubricants, Application of, 241
Mass Spectrometry, Advances in, 279
Metric System in the U.K. The Use of SI Units, 123
Motor Gasoline Quality, World-Wide Survey, 379
Netherlands Oil and Gas Equipment Manufacturers' Catalogue, 340
Offshore Oil Concessions Agreements in OPEC Member Companies, 74
Oil: North America, 379
Oil: The New Commanding Height, 74
Oil: The United Kingdom, 240
Oil: U.S.S.R., 277
Oil: Western Europe, 241
Oil and Gas in the Netherlands and under the North Sea, 18
Oil and Petroleum Year Book, 18, 379
Oil Statistics 1964, 14
Petrol Prices at the Pump, 240
Petroleum Facts and Figures 1965, 240
Petroleum Supply and Demand, 279
Polish Technical Review, 74
Polymer Degradation, The Effects of on Flow Properties of Fluids and Lubricants, 43
Proving Ground, 241
Salt Basins Around Africa, 279
Soviet Union, The Cost of Fuels in, 42
Statistical Digest 1965, Ministry of Power, 379
Statistical Summary of the Mineral Industry 1959–64, 241
Steels, The Super 12% Cr, 241
U.K., The Petroleum Industry in the, 279
Unknown Oman, 307
Wages—Fog or Fact, 123
X-Ray Spectrometry Methods, 42

BP Banana Misting Oil, 220
BP Minerals Australia Pty Ltd, 220
Branches Committee, 81
Brazil:
polybutadiene rubber manufacture, 141
refinery developments, 34
British Honduras, oil search, 9
British Petroleum Co. Ltd, 146–7
British Standards, 21, 39, 71, 102, 153, 181, 265, 311, 347, 374, 413
British Welding Research Association Conference, 226
Bulgaria:
oil and gas industry, 199–202
polyethylene plant, 9
Burma, oil industry, 249–57
Burmah Oil Co., 312
Burmah Oil Trading Ltd, 140
Burners, non-return valve, 281
Bulk handling system, 247

Calor Gas Coryton station, 16
Canada:
Alberta LPG plant, 366
methanol plant, 220
oil search, 259
petrochemical developments, 295, 408
refinery developments, 220, 259, 283
Canadian Superior Oil Ltd, 351
Canvey Island, frozen-ground storage, 186, 365
Careers:
advertising, 345–7
chemical engineer, 242–4
chemist, 203–5
economist, 389–90
engineer, 154–6
geologist, 77–80
mariner, 119–22
mathematicians and statisticians, 309–11
physicist, 267–70
Cargoes, liquid, Whessoe handling system, 157
Carless, Capel & Leonard Ltd, 295
Castrol South Africa (Pty) Ltd, 222
Catalyst, cracking, 247
CBMPE annual dinner, 383–4
CEC Fuels Committee, 34
Central heating, domestic, 1–5
Chemical Industries Association, 257
Chromatograph, on-stream gas analyser, 27
Chromatography, micro-injector, 131
Chronoseis equipment, 59
Coatings, heat reflexion ratings, 282
Compagnie Chimique de la Mediterranée (Cochime), 69
Complexine G, 388
Compressors, gas, 282
Computer:
analog, 211
digital, 247
Concrete floors, cleaner, 93
Conoco All Season motor oil, 280
Conoco Deutschland Inc, 14
Continental Oil Co., 271–2
Immingham refinery, 301
Controller, pneumatic, 95
Corrosion, rust anode, 131
Corrosion inhibitor, liquid, 93
Cleaner, steam, 284
Cuba, oil search, 68
Curfew Petroleum Ltd, 58
Cyprus Mines, 37
Czechoslovakia, Slovnaft refinery, 213–7

Data processing system, 395
Davis, John, & Son (Derby) Ltd, 413
Decade counter, 211, 280
Denmark:
oil search, 328
refinery developments, 68
Density meter, 283
Diesel smoke control, 365
Drilling rigs, offshore, emergency escape, 355
Dubai, oil search, 220

Ecuador, refinery developments, 296
Education Committee, 17–18
Eire:
oil gas plant for Cork, 221
tanker terminal, 141, 409
El Paso Natural Gas Co., 148–9
Electronic equipment, air-purged, 212
ELF Mineralöl GmbH, 71
Esso Europe Inc, 109
Esso Petroleum Co. Ltd:
first U.K. hotel, 149
U.K. oil search, 44–5
Estor SDX diesel lubricants, 247
Ethiopia:
offshore drilling, 34
products export, 221
Europe, economic developments, 412
European Petroleum Co., 293
Exhaust fumes, measurement, 307

Filling stations:
blender pumps, 363
developments, 348–9

Films:
Ahmadi Cargo, 380
Delvac Oils, 123
Distillation, 162
Domestic Chimneys, Trouble with, 241
Empty Seat, The, 123
Fast and Safe, 43
Flame, The Glowing, 202
Intermediate Bulk Handling, 418
It's in the Oil, 43
Methane Story, The, 123
Mountain Legend, 43
Pause for Nostalgia, 162
Preserving the Wasa, 162
Pressure Vessel for Porvoo, 124
Pumps Without Tears, 162
River Must Live, The, 241
Rolling Bearings and their Lubrication, 240
Steam, This Age of, 162
Story of a Town, 380
Three Wheels at Mallory, 43
Timinox Says "No" to Flame, 418
Filon Corporation of California, 37
Filter, in-line, 210
Finland, oil imports, 110
Fina Viscosity Nonogram, 26
Finance Committee, 128
Fires:
bromochlorodifluoromethane extinguisher, 281
fighting, 117–18
operation Prometheus, 314
Flowmeter, 281
Fluid mixing research, 167
France:
Dutch gas supply, 34
oil distribution, 221
oil search, 9, 367
petrochemical developments, 69, 296, 367
refinery developments, 9, 221, 259
Fuel cell research, 306
Fujairah, oil search, 296

Gainsborough Petroleum Co., 293
Gas chromatography conference, 392
Gas container, rubber, 211
Gas leaks, detection by dogs, 141
Gases, disposal system, 94
Gasoline, solid, 394
Gasoline additive, 318
Generators, thermoelectric, 211
Germany, West:
drilling activity, 298
Dutch gas imports, 298, 329
gas find, 331, 411
oil search, 331, 371
petrochemical developments, 331
pipeline developments, 71, 298
refinery developments, 38, 112, 298, 411
tanker fleet, 372
Greasers, portable, 131
Gulf of Guinea, oil search, 328
Gulf Oil Corporation, 184–5
Milford Haven refinery, 335, 407
Gulf Oil (Great Britain) Ltd,
Heathfield storage plant, 372
Leith terminal, 176—7

Heat exchanger, 283
Hong Kong, Mobil terminal, 142
Honours for oil men, 56, 245–6
Hose, high pressure, 318
Hovershow 66, 227
Hungary, pipeline developments, 409
Husky Oil Canada Ltd, 351
Hydraulic fluid, 247
Hydraulic motor, 395

IAE gear rig test, 317
Idd-el-Shargi, 302–4
Imperial weights and measures, 351–2
Impulse transmitters, 423
Industrial Training Act, 29–32
India, refinery developments, 329
Information service, 342–4
Institute of Petroleum:
ASTM–IP co-operation, 164–5
Annual Dinner, 97–102
Benevolent Fund, 166
Birmingham Lecture, 25, 91
Branches
Australia, 391
Bahrain, 24, 92, 164, 317, 354
Humber, 92, 130, 246
Kuwait, 246
London, 25, 57, 129, 165, 392, 426
Northern, 91, 92, 130, 425
Institute of Petroleum: (cont.)
Branches (cont.)
Scottish, 91, 129, 165, 425
South Eastern, 25
South Wales, 426
Stanlow, 24, 58, 91, 129, 208
Trinidad, 90
Yorkshire, 208
Branches Committee, 81
Council, 129
Education Committee, 17–18
Finance Committee, 128
IP–DGMK joint meeting, 22–4
new members, 26, 58–9, 92, 130, 165–6, 208, 246–7, 317–8, 393–4, 426–7
President Elect, 57
Research Committee, 54
Summer Meeting, 230–5
Instruments, electronic, controllers, 93
International Chemical and Petroleum Engineering Exhibition, 187–93
Inventory control unit, 427
International Oil Tanker Safety Group, 407
Iran:
Kharg Island developments, 133–9
oil search, 10, 34, 179, 221, 259, 296, 307
petrochemical developments, 367
pipeline developments, 69
refinery developments, 34
Iranian Oil Operating Companies, 271
Iraq, oil search, 69
Iraq Petroleum Co. Ltd, 351, 372
Israel, oil exports, 34
oil search, 10
Italy:
gas transport, 409
largest oil depot, 409
liquid methane imports, 10
new Texaco company, 111
refinery developments, 35, 69, 179, 329
Shell diving company, 228

Japan:
natural gas imports, 10
oil search, 329
offshore survey, 10
petrochemical developments, 70, 296

Kenya, oil search, 142, 329
Kharg Island, 133–9
Kuwait:
oil search, 142
refinery developments, 111
Kuwait Oil Co. Ltd, 271
Kuwait Oil Tankers, supertanker building, 221

Leonard Refineries Inc, 143
Level indicator, continuous, 209
Levorsen memorial fund, 317
Liberia Operations Inc, 35
Libya:
dune stabilization, 10
Marsa training centre, 11
oil search, 35, 70, 142, 221, 367, 409
Petroleum Law, 35
Liquefied natural gas, frozen ground storage, 186, 365
Lubricants, solid-film, 283
Lubricating oil, anti-oxidant additives, 46–54
Lubrizol India, 34

Malaysia:
fuelling facilities, 11
refinery developments, 179
Managers, need for, 362
Manufacture Normande de Polyethylenes, 9
Markers, industrial, 319
Methane, protein from, 218
Mexico, acrylonitrile monomer plant, 259
Middle East oil production, 19, 32, 76, 111, 116, 157, 177, 223, 270, 307, 334, 390, 422
Morocco, refinery developments, 296
Mosul Petroleum Co. Ltd, 351
Motor, flameproof, 247
Multron motor oil, 210
Murphy Oil Corpn., 272
Muskat and Oman, oil search, 70

NLOGF annual dinner, 422
Netherlands:
natural gas developments, 9, 34, 329
oil search, 9, 18
petrochemical developments, 34, 69, 221, 259, 297
pipeline development, 368
refinery developments, 69, 110, 141, 368
Shell vinyl polymer plant, 10
New Guinea, oil search, 11, 111, 222, 330, 409
New Zealand, oil search, 35, 142
Nigeria:
oil exports, 11
refinery developments, 70
Shell-BP terminal, 179
North Sea gas, 357–62
North Sea oil search, 15, 18, 20, 40, 73, 80, 118, 144–5, 180–1, 185, 224–5, 228, 261–3, 264, 299–300, 333, 373–4, 416–8
Northern Ireland:
oil consumption, 56, 235, 265, 350
refinery developments, 178
Norway:
fertilizer plant, 111
refinery developments, 222

OECD area, oil statistics, 14
OECD Energy Committee report, 305
Offshore drilling and completions, 285–92, 424
Offshore exploration:
diving bell, 229
submersible chamber, 41, 72–3, 334
supply vessel, 336
Oil industry, relationship with automotive industry, 236–40
Oil Terminals Safety Group, 7
Oman:
oil industry, 114–6
plastic road tankers, 11
Oxygen meter, 211

Paint, coating systems, 167
Pakistan:
natural gas developments, 70, 222, 369
oil production, 11, 70, 369
oil search, 11
Pauley Petroleum Inc., 36
Peru, refinery developments, 11, 330
Petroleos Colombianos, 68
Philippines, fertilizer plant, 179
Phillips-Imperial Petroleum Ltd, Billingham refinery, 376–9
Phillips Petroleum Products Ltd, 179
Phillips Petroleum U.K. Ltd, 57

Philmac Oils Ltd, Eastham refinery, 375
Physics Exhibition, 209
Pipe bender, 428
Pipe clip, boltless, 28
Pipe fittings, butt welded, 396
Pipe support, 28
Pipes, Pipelines and Pumps Exhibition, 177
Pipelines:
  hot oil, 294
  pig traps, 93
  role of, 415
  Trans-Alpine, 414–5
Platinum group metals, organometallic compounds, 166
Poland:
  ammonia from methane, 11
  filling station operation, 11
  gas reservoir, 11
  petrochemical developments, 70, 369
  pipeline developments, 70
  refinery developments, 297
Pollution:
  atmospheric, developments, 273–6
  Beach Pollution Working Group, 393
  beaches, 229
  diesel smoke control, 365
  sea, convention, 265
  smoke dispersion, 364
  water, load-on-top method, 156
Popularizing petroleum in the eighties, 194–8
Portugal, refinery developments, 36
Potentiometric recorder, 28
Product analyser, 211
Pumps:
  centrifugal, 209
  diaphragm, 394
  hydraulic, air-driven, 93
  metering, 210
  viscous fluid, 428
Pumphead unit, 281

Refineries, smell elimination, 339–40
Refining, computer control, 169–75
Research Committee, 54
Resins, Teflon, 94
Richfield Oil Corporation, 37
Rimrock Tidelands Inc,149
Rotameters, Series 1000, 395
Royal Dutch-Shell Group, 183–4

Sand dune stabilization, 10
Sarawak, oil search, 36
Saudi Arabia, refinery developments, 369
Scotland, oil consumption, 43, 229, 263, 341
Sea Truck, 336
Seal:
  mechanical, 318
  slurry pump, 319
Shell Development, (Australia) Pty Ltd, 366
Shell research fellowships, 7
Shell Transmission Oil CV, 356
"Shell" Transport and Trading Co. Ltd, 183–4
Signal lamp, 94
Skelly Oil Co., 37
Sodium hydroxide powder, 28
Solid state controller, 166
Solvents, equipment cleaning, 283
Somalia, oil search, 330
South Africa, oil search, 369
South Korea, fertilizer plant, 111
Spain:
  natural gas imports, 111, 220
  oil search, 111
  refinery developments, 36, 70, 179, 369
Spectrophotometer, 427
Spraygun, airless, 282
Standard Oil Co. (Indiana), 147–8
Standard Oil Co. (Ohio), 37, 148, 180
  catalyst plant, 223
Standard Oil Co. of California, 184
Storage, bulk, bag for, 94
Strico GmbH, 71
Strikfeldt, W. & Co. GmbH, 71
Sweden, refinery developments, 36, 71, 330, 369, 405
Submersible work chamber, 41, 72–3, 334
SURV, 334
Switzerland:
  German gas supply, 12
  oil industry, 103–8
  refinery developments, 222
Syria:
  ammonia plant, 36
  oil search, 369

Taiwan, refinery developments, 111
Tank cars:
  rail, aluminium, 112–3
  road, aluminium, 112–3
    horse drawn, 198
    marine lubricant, 318
    marking, 384
    plastic, 11
    warning system, 327
Tankers:
  control system, 95
  engine room automation, 266
  jumboing, 329
  world fleet statistics, 21, 75–6, 125–6, 206–7, 315–6, 337, 385, 423–4
  world's largest, 10, 329
Tanks:
  contents indicator, 284
  gauge, 319
  gauges, automatic, 95
  petroleum spirit, hazards, 74
  polyurethane insulation, 294
  world's largest, 411
Tape transports, 167
Tarmac Civil Engineering Ltd, 407
Teaching system, 395
Tees Oil Products Ltd, 179
Teflon resins, 94
Telephones, pocket radio, 167, 282
Temperature indicator, remote control, 27
Temperature voltmeter, 395
Tennessee Colombia, 68
Texaco Inc, 147
Trans-Alpine pipeline, 414–5
Trinidad:
  gas pipeline, 71
  oil search, 143
Turbine fuel, water detector, 356
Turbo charger, exhaust gas, 281
Turkey:
  oil search, 36, 410
  pipeline developments, 369
Turkey, refinery developments, 12

Union Carbide Eastern, 260
Union Carbide Europe, 260
Union Carbide Pan American, 260
Union Oil Company, 312
Union Treibstoff GmbH, 71
Universal Oil Products, catalyst manufacture, 37
United Kingdom:
  aviation fuel duty, 118, 229
  Canvey Island gas conversion, 308
  carbon black imports, 229
  cut-off nozzles at filling stations, 307
  dangerous substances conveyance, 20
  diesel exhaust research, 229, 264,
  Energy Advisory Committee, 20
  Esso oil search, 44–5
  Esso-AGIP merger, 40
  exhaust fume deaths, 118
  exhaust fumes, 20, 419
United Kingdom: (cont.)
  filling stations, 80, 118, 306, 348–9, 384
  fuel advertising, 20
  fuel cell research, 306
  fuel oil imports, 20
  fuel oil tax, 20
  fuel supplies, 40
  fuel tax, 81
  Gas Council research, 6
  gas imports, 20
  gas storage underground, 20, 80
  gasoline and vehicle duties, 229
  hydrocarbon oils duty, 185, 264, 306
  Industrial Development Bill, 228
  jet aircraft fuel, 419
  labour in refineries, 126, 382
  Medway pollution, 384
  methane pipeline, 321–5
  National Coal Board Bill, 420
  natural gas find, 178, 218, 258, 293, 363
  oil and gas activities, 419
  oil burner fumes, 307
  oil consumption, 39, 124, 217, 325
  oil-fired power stations, 81
  oil industry control, 118, 264
  oil pollution, 118
  oil sales to North Vietnam, 118
  oil search, 6, 7, 140, 293, 326, 363, 406
  oil trade 1965, 158–61
  petrochemical developments, 33, 67, 109, 140, 258, 326, 364, 407, 420
  pipeline developments, 67, 363
  pipeline imports duty, 264
  Purfleet oil storage, 6
  refinery developments, 6, 7, 33, 67, 109 140, 178, 218, 293, 326, 335, 364, 406
  road tanker marking, 264
  Solus Petrol Order, 420
  storage tank siting, 80
  town gas plants, 7, 294, 407
  white oil sales, 6
United States:
  fertilizer plant, 37
  gas search, 222
  gasoline distribution, 397–405
  Gulf shipping fairway, 12
  natural gas pipeline, 143
  New Mexico gas find, 260
  oil industry prospects, 332
  oil search, 13, 38, 330, 370, 410
  petrochemical developments, 13, 38, 71, 143, 179, 223, 260, 297, 370, 410
  refinery developments, 37, 112, 143, 179, 223, 330, 371, 410
U.S.S.R.:
  natural gas developments, 13, 410
  pipeline developments, 38, 180, 298, 410
  oil search, 13, 38, 371
  Siberian gas reserves, 298

Valves:
  air-spring actuator, 212
  butterfly, 210
  double flap check, 356
  electric actuator, 26
  electro-hydraulic, 394
  needle, 167, 212
  reducing, 93
  remote control, 95
Viscosity index calculation, 354
Voltmeter, 280

Whessoe Ltd, 71
Williams, Samuel, Ltd, Dagenham dock, 182–3
World oil industry 1964, 82–8
World Petroleum Congress, Seventh, 277, 317, 355, 425

Yugoslavia, refinery developments, 14, 112